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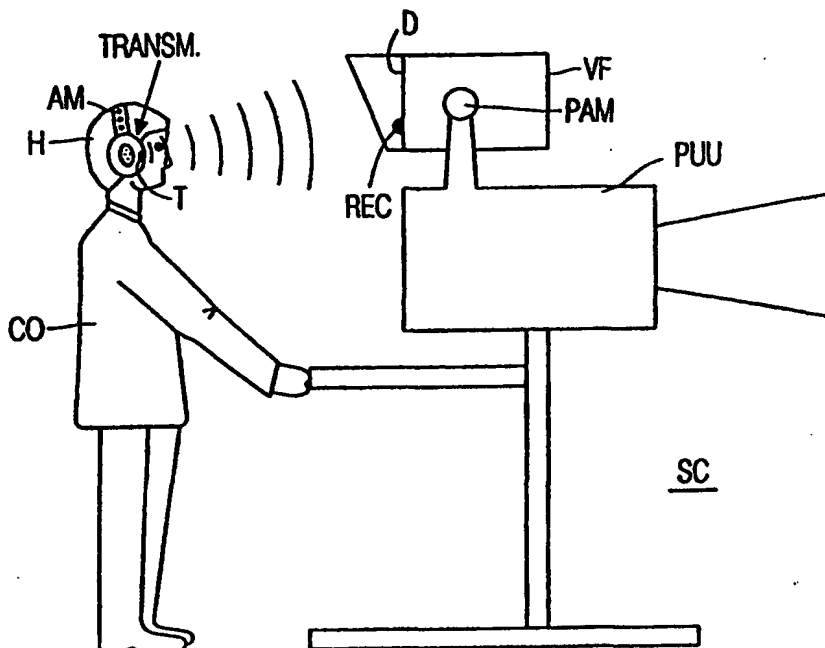
## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: <b>PCT/EP99/08340</b> (22) International Filing Date: 2 November 1999 (02.11.99) (30) Priority Data: 98203907.5 18 November 1998 (18.11.98) EP (71) Applicant: <b>KONINKLUKE PHILIPS ELECTRONICS N.V.</b> [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL). (72) Inventor: <b>VAN DEN HERIK, Florus, B.; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).</b> (74) Agent: <b>STEENBEEK, Leonardus, J.; Internationaal Octrooibureau B.V., Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).</b>		(81) Designated States: JP, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).  <b>Published</b> <i>With international search report.</i>

(54) Title: **STUDIO CAMERA VIEWFINDER**

## (57) Abstract

In a studio camera (SC), comprising an image pickup unit (PUU) for converting a scene into image signals, and a viewfinder (VF) for displaying the image signals on a viewfinder display (D), the viewfinder (VF) having a position adjustment mechanism (PAM) for allowing a camera operator (CO) to have an optimal view on the viewfinder display (D), the position adjustment mechanism (PAM) is automatically controlled so as to direct the viewfinder display (D) to the camera operator (CO).



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Studio camera viewfinder.

The invention relates to a viewfinder for a studio camera, and to a studio camera provided with a viewfinder.

Studio camera viewfinders are hand-adjusted to allow the camera operator to  
5 have a good view on what is picked up by the camera. Especially for viewfinders having an LCD display, known for having a large viewing angle dependency of the display, it is very important that the camera operator continuously has a good view on the viewfinder display. To adjust the viewfinder orientation, the viewfinder is provided with a pan and tilt mechanism that is to be operated by the camera operator, who for this purpose, has to remove his hands  
10 from the camera controls (sharpness, zooming, pan, tilt).

It is, inter alia, an object of the invention to facilitate a camera operator's work. To this end, primary aspects of the invention provide a camera viewfinder unit, a studio camera, and a head-mountable transmitter as defined in the independent claims. Advantageous  
15 embodiments are defined in the dependent claims.

In a studio camera in accordance with the present invention, comprising an image pickup unit for converting a scene into image signals, and a viewfinder for displaying the image signals on a viewfinder display, the viewfinder having a position adjustment mechanism for allowing a camera operator to have an optimal view on the viewfinder display,  
20 the position adjustment mechanism is automatically controlled so as to direct the viewfinder display to the camera operator.

These and other aspects of the invention will be apparent from and elucidated with reference to the embodiments described hereinafter.

25 In the drawings:

Fig. 1 shows an embodiment of a studio camera in accordance with the present invention; and

Fig. 2 shows parts of the studio camera of Fig. 1 in more detail.

In the embodiment of Figs. 1 and 2, the studio camera SC comprises an image pickup unit PUU and a viewfinder VF. The viewfinder VF has a position adjustment mechanism PAM to automatically direct a viewfinder display D to a camera operator CO. In a simple embodiment, the position adjustment mechanism PAM just has a tilt motor M.

5 Obviously, in more complex embodiments, other movements like panning are also possible. The position adjustment mechanism PAM is controlled by a receiver REC that receives position information signals from a transmitter TRANSM unit mounted on a head H of the camera operator CO. The transmitter unit TRANSM has a device for attaching the transmitter to the head H, and a proper transmitter T.

10 So, in a preferred embodiment, to ensure that a viewfinder VF is always directed to a camera operator's face (especially important if the viewfinder display D is an LCD having a viewing angle dependent visibility), the viewfinder VF is provided with a (tilt) motor M which is controlled by a transmitter TRANSM, preferably an optical transmitter, mounted on the cameraman's head H, preferably in his headphone, in such a manner that the  
15 viewfinder display D is always directed to the camera operator's face. Advantage: now that the camera operator CO no longer needs to adjust the viewfinder (tilt) angle manually, he can use both hands for controlling the camera SC.

It should be noted that the above-mentioned embodiments illustrate rather than  
20 limit the invention, and that those skilled in the art will be able to design many alternative embodiments without departing from the scope of the appended claims. In one alternative embodiment, the viewfinder's position adjustment mechanism comprises a gyroscope to ensure that the viewfinder display stays directed to the camera operator's face even if the image pick-up unit is moved. In the claims, any reference signs placed between parentheses shall not be  
25 construed as limiting the claim. The word "comprising" does not exclude the presence of other elements or steps than those listed in a claim. The invention can be implemented by means of hardware comprising several distinct elements, and by means of a suitably programmed computer. In the device claim enumerating several means, several of these means can be embodied by one and the same item of hardware.

## CLAIMS:

1. A studio camera (SC), comprising:  
an image pickup unit (PUU) for converting a scene into image signals; and  
a viewfinder (VF) for displaying said image signals on a viewfinder display  
(D), said viewfinder (VF) having a position adjustment mechanism (PAM) for allowing a  
5 camera operator (CO) to have an optimal view on said viewfinder display (D), wherein said  
position adjustment mechanism (PAM) is automatically controlled so as to direct said  
viewfinder display (D) to said camera operator (CO).
2. A studio camera (SC) as claimed in claim 1, wherein said position adjustment  
10 mechanism (PAM) comprises at least one motor (M) that is controlled by a receiver (REC) for  
receiving signals from a transmitter unit (TRANSM) attached to said camera operator (CO).
3. A studio camera viewfinder (VF), comprising:  
a viewfinder display (D) for displaying image signals from an image pickup  
15 unit (PUU); and  
a position adjustment mechanism (PAM) for allowing a camera operator (CO)  
to have an optimal view on said viewfinder display (D), wherein said position adjustment  
mechanism (PAM) is automatically controlled so as to direct said viewfinder display (D) to  
said camera operator (CO).  
20
4. A studio camera viewfinder (VF) as claimed in claim 3, wherein said position  
adjustment mechanism (PAM) comprises at least one motor (M) that is controlled by a  
receiver (REC) for receiving position control signals from a transmitter unit (TRANSM)  
attached to said camera operator (CO).
- 25 5. A head-mountable transmitter unit (TRANSM), comprising:  
means (AM) for attaching said transmitter unit (TRANSM) to a camera  
operator's (CO) head (H); and  
means (T) for transmitting position control signals.

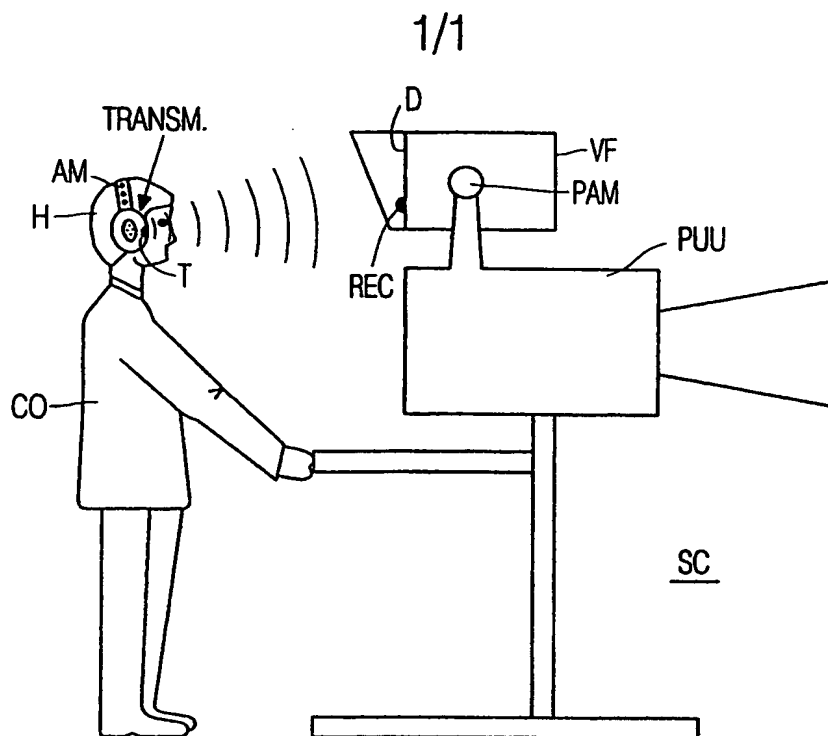


FIG. 1

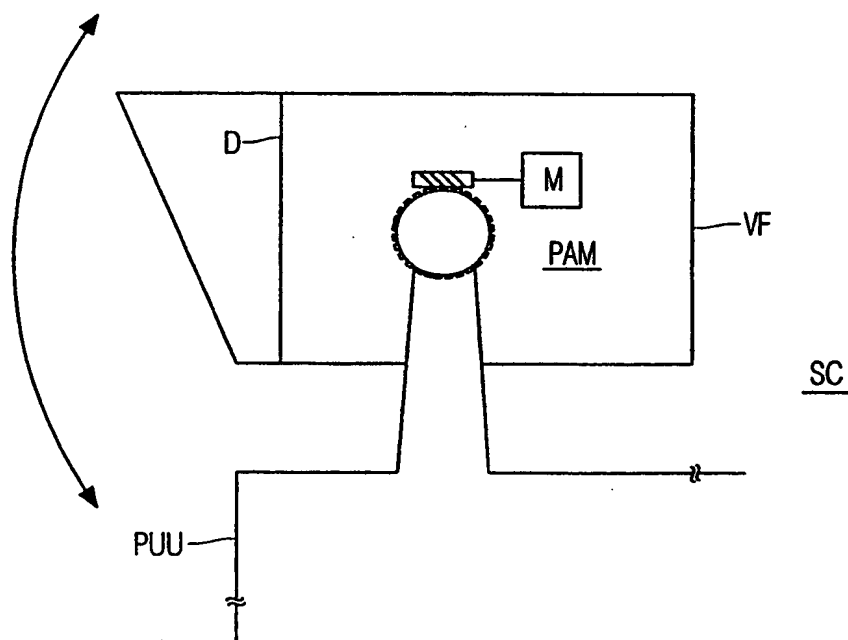


FIG. 2

# INTERNATIONAL SEARCH REPORT

Intern. Application No

PCT/EP 99/08340

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 H04N5/225

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04N G03B G02B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

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X A	---	1, 3 2, 4
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A	US 5 548 334 A (ICHIYOSHI HIROYUKI) 20 August 1996 (1996-08-20) column 7, line 19 - line 57	2, 4
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

7 February 2000

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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Information on patent family members

International Application No

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